

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1 (currently amended): A method for increasing the capacity of signal transmission systems comprising  $N_T$  users, a single-piece receiver receiving the mixture of signals originating from the  $N_T$  users, ~~characterized in that it includes at least~~ comprising the following steps :

- a) determining a qualitative information  $\text{Info}(Q_s)$  of the symbols estimated for each of the  $N_T$  users,
- b) transmitting this information  $\text{Info}(Q_s)$  to a processing block receiving an a priori information and designed to generate a quality information,  $\text{Info}(Q_{bs})$ , on the bits forming the symbols, and
- c) transmitting the  $\text{Info}(Q_{bs})$  to a decoding step to obtain a qualitative information on the encoded bits and  $\text{Info}(Q_{bu})$  on the useful bits.

2. (currently amended): The method as claimed in claim 1, ~~characterized in that wherein~~ [[the]] step a) is performed using an MAP (Maximum a Posteriori) detector.

3. (currently amended): The method as claimed in claim 1, ~~characterized in that wherein~~ the steps a) to c) are repeated until the qualitative information is fairly constant.

4. (currently amended):The use of the method as claimed in ~~one of the preceding~~ claim[[s]] 1, for transmitters using one of the following modulation schemes : BPSK, QPSK, OFDM.

5. (new):The use of the method as claimed in claim 2, for transmitters using one of the following modulation schemes : BPSK, QPSK, OFDM.

6. (new):The use of the method as claimed in claim 3, for transmitters using one of the following modulation schemes : BPSK, QPSK, OFDM.